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| 10/576,450 | 04/20/2006 | Nobuhiko Tsuda | Q94064 | 3460 |
| 23373 7590 08/13/2010 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037 | | | | |
| EXAMINER BUE-HATCHER, NICOLE M | | | | |
| ART UNIT | | PAPER NUMBER | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/576,450

Applicant(s)

TSUDA ET AL.

Examiner

NICOLE M. BUIE-HATCHER

Art Unit

1796

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4 and 7-12 is/are pending in the application.
- 4a) Of the above claim(s) 9-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 7 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI.08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Interval Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07/30/2010 has been entered.

Response to Amendment

Claims 1, 4, and 7-12 remain pending. Claims 9-12 were previously withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

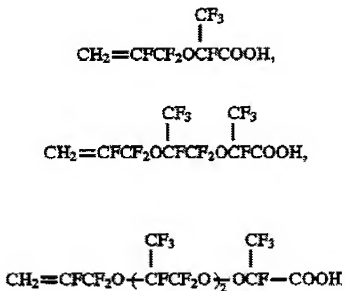
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araki et al. (US 5,670,593).

Regarding claims 1 and 4, Araki et al. discloses a tetrafluoroethylene polymer aqueous dispersion containing 0.01-80 mol% of a functional fluorine-containing olefin (C6/L8-54) for example the formulas as shown below as well as their derivatives (C25/L26-C26/L49):



Araki et al. disclose in claim 1 the tetrafluoroethylene polymer aqueous dispersion wherein the tetrafluoroethylene polymer has a tetrafluoroethylene unit content of 20-99.99 mol%.

Additionally, it is possible to use **no usual free emulsifying agent** or decrease an amount thereof (C21/L57-63).

However, Araki et al. does not disclose limit the amount of tetrafluoroethylene exceeds 60 mole percent. For Examples 33-35 which the polymerization conditions are shown in Table 7, a hydroxyl version of the reactive emulsifier is used wherein the tetrafluoropolymer contains 99.2 mole% of tetrafluoroethylene in Example 33, 99.1 mole% tetrafluoroethylene in Example 34, and 98.5 mole% of tetrafluoroethylene in Example 35. Therefore, it would have been obvious to one of ordinary skill in the art would expect if the N-1-OH surfactant used in these examples was substituted with any of the N-1-COOH, N-2-COOH, or N-1-COONH₄ (C58/L62-C59/L10) which are the same emulsifiers as shown above would have a reasonable expectation of success in the polymerization process of higher amounts of tetrafluoroethylene.

Regarding claim 7, Araki et al. does not disclose the tetrafluoroethylene polymer aqueous dispersion which has a solid matter concentration of 5 to 70% by mass. Additionally, Hirashima et al. teaches the solid matter concentration of the water-based emulsion is from 10 to 70 wt% (C8/L55-62). It would have been obvious to one of ordinary skill in the art at the time of invention to obtain a solid matter concentration as taught by Hirashima et al. in a composition of Araki et al. , and the motivation to do so would have been as Hirashima et al. suggests to improving storage stability and viscosity (C8/L55-62).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Araki et al. (US 5,670,593) in view of Hirashima et al. (US 5,856,392) as applied to claim 1 above, in further view of Araki et al. (WO 95-08598A, see English equivalent (US 5,925,705) for citation).

Regarding claim 8, Araki et al. (US '593) does not disclose the tetrafluoroethylene polymer aqueous dispersion wherein the particle comprising the tetrafluoroethylene polymer has

an average primary particle diameter of 50 to 500 nm. Araki et al. (US '705) teaches the particle size is not more than 200 nm (C3/L14-22). Araki et al. (US '593) and Araki et al. (US '705) are analogous art concerned with the same field of endeavor, namely aqueous dispersions of fluoropolymers produced from emulsion polymerization. It would have been obvious to one of ordinary skill in the art at the time of invention to use the particle size of Araki et al. (US '705) in the dispersion of Araki et al. (US '593), and the motivation to do so would have been to improve the stability of the dispersion (C3/L14-22).

Response to Arguments

Applicant's arguments with respect to claims 1, 4, 7, and 8 have been considered but are moot in view of the new ground(s) of rejection. The following comment(s) apply:

A) Applicant's argument that compound of formula (V) is an impurity in a polymerization for producing a perfluoro-based polymer having a tetrafluoroethylene content exceeding 60 mole percent, and therefore it would not be obvious to use the compound of formula (V) in the dispersion of Araki (page 7) is not persuasive. According to claim 12 of Araki et al., monomer (B) can be tetrafluoroethylene using the genus of the fluorovinyl-group emulsifier of the instant claims. Therefore, the teachings of Araki does not teach away from the use of a reactive emulsifier with the polymerization of tetrafluoroethylene wherein the amount of tetrafluoroethylene may be up to 99.99 mole%. The specific fluorovinyl-group emulsifier is disclosed in Araki et al. as shown above in claim 1.

B) Applicant's argument that the compound of formula (V) is different from PFOA and adversely affects the polymerizability of TFE or the properties of the resulting polymer (page 8)

is not persuasive. When the reference relied on expressly anticipates or makes obvious all of the elements of the claimed invention, the reference is presumed to be operable. Once such a reference is found, the burden is on applicant to provide facts rebutting the presumption of operability. In re Sasse, 629 F.2d 675, 207 USPQ 107 (CCPA 1980). See MPEP § 2121. Furthermore, Araki et al. discloses it is possible to use **no usual free emulsifying agent** (C21/L57-63) and as shown above in claim 1.

C) Applicant's argument that there is nothing in Araki which would lead one of ordinary skill to carryout polymerization in the presence of a fluorovinyl group-containing emulsifier represented by formula (V), where the resulting tetrafluoroethylene polymer has a tetrafluoroethylene unit content exceeding 60 mole percent as claimed in amended claim 1 (page 8) is not persuasive. For Examples 33-35 which the polymerization conditions are shown in Table 7, a hydroxyl version of the reactive emulsifier is used wherein the tetrafluoropolymer contains 99.2 mole% of tetrafluoroethylene in Example 33, 99.1 mole% tetrafluoroethylene in Example 34, and 98.5 mole% of tetrafluoroethylene in Example 35. Therefore, one of ordinary skill in the art would expect if the N-1-OH surfactant used in these examples was substituted with any of the N-1-COOH, N-2-COOH, or N-1-COONH₄ (C58/L62-C59/L10) which are the same emulsifiers as shown above in claim 1 would have a reasonable expectation of success in the polymerization process.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICOLE M. BUIE-HATCHER whose telephone number is

(571)270-3879. The examiner can normally be reached on Monday-Thursdays with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571)272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. M. B./
Examiner, Art Unit 1796
8/5/2010

/David Wu/
Supervisory Patent Examiner, Art Unit 1796